

WHAT IS CLAIMED IS:

1           1.     A fermentation composition for treatment of aquatic environments, the composition  
2 comprising:

3                   an activated organic matrix, beneficial saprophytic bacteria, beneficial hydrolytic  
4 enzymes, and soluble humatic compounds.

1           2.     The composition according to Claim 1 wherein the activated organic matrix is  
2 comprised of one or more products selected from a group consisting of wheat, barley or rye straw,  
3 ground, whole-grain barley grain and wheat bran.

1           3.     The composition according to Claim 1 wherein said beneficial saprophytic bacteria  
2 are composed of one or more strains selected from the group consisting of *Bacillus subtilis*, *Bacillus*  
3 *licheniformis*, *Bacillus amyloliquefaciens*, *Paenibacillus polymyxa*, *Bacillus megaterium*, *Bacillus*  
4 *psychrophilus*, *Bacillus globiformis*, *Bacillus psychrosaccharolyticus*, *Bacillus benzovorans*, *Bacillus*  
5 *vallismortis*, *Bacillus mojavenis*, *Bacillus stearothermophilus*, and *Bacillus acidopulliticus*.

1           4.     The composition according to Claim 1 wherein the organic matrix is activated by  
2 fermentation in the presence of beneficial saprophytic bacteria.

1           5.     The composition according to Claim 1 wherein the hydrolytic enzymes are produced  
2 during the fermentation of the organic matrix by the beneficial saprophytic bacteria.

1           6.     The composition according to Claim 1 wherein the soluble humatic compounds are  
2 produced by the fermentation of the organic matrix by the beneficial saprophytic bacteria.

1           7.     The composition according to Claim 1 wherein the organic matrix is comprised of  
2 from 10% to 75% wheat straw and wheat bran.

1           8.     The composition according to Claim 1 wherein the organic matrix is comprised of  
2 from 10% to 75% other straw or grain products.

1           9.     The composition according to Claim 1 wherein the organic matrix is comprised of  
2 from 10% to 98% barley and/or grain.

1           10.    The composition according to Claim 1 wherein the composition is a dry granulated  
2 fermentation product.

1           11.    A method for producing a dried granular fermentation product for the treatment of  
2 aquatic environments comprising the following steps:

- 3           (a)     providing an organic matrix;
- 4           (b)     adding water in the amount of 35% to 60% by weight based on the weight of  
5               the total composition to said organic matrix;
- 6           (c)     steam pasteurizing the organic matrix;
- 7           (d)     inoculating the pasteurized organic matrix with seed bacterium;

- 8 (e) incubating the organic matrix until bacterial growth occurs; and  
9 (f) drying the organic matrix to immobilize the saprophytic bacteria.

1 12. A method as set forth in Claim 11 including the additional step of chopping said  
2 organic matrix into pieces from about .2 cm to about 5 cm in length prior to said addition of water.

1 13. A method as set forth in Claim 11 including the additional steps of adding additional  
2 nutrients to said organic matrix to accelerate growth of bacteria and adding buffering salts to the  
3 organic matrix to control pH for optimum bacterial growth prior to stream pasteurization.

1 14. A method as set forth in Claim 11 including the additional step of grinding the  
2 organic matrix after said drying to create a dried granular fermentation product.

1 15. A method for treating an aquatic environment comprising the steps of:  
2 adding a fermentation composition of an actuated organic matrix, beneficial  
3 saprophytic bacteria, beneficial hydrolytic enzymes, and soluble humatic compounds to the aquatic  
4 environment in an amount sufficient to reduce growth of algae in the aquatic environment.